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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,138	01/29/2004	Burt W. Fowler	206-1-2004	4368

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EXAMINER

CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
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1745

MAIL DATE	DELIVERY MODE
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09/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/767,138

Applicant(s)

FOWLER ET AL.

Examiner

Jonathan S. Crepeau

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claim 3 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on March 14, 2007. Specie (i) was also provisionally elected for prosecution on the merits.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9, 10, 26, 30-32, 35, and 40-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claims 9 and 10, these claims recite “wherein a large number of options exist.” This language is indefinite as it does not clearly point out the claimed subject matter.

With regard to claims 26, 30-32, 41 and 42, these claims recite “common,” “standard,” or “conventional” methods or techniques, or techniques that are “well known in the art.” This language is also considered to be indefinite.

With regard to claim 26, it is unclear if “the electrical conductors” refers to the extractor lines or to the interconnect. Similarly, with regard to claim 35, it is unclear if the recitation of

“anode and cathode electrical conductor lines” defines conductors in addition to the extractors or interconnects.

With regard to claims 40 and 42, the term “for example” is also considered to be indefinite.

Claim Interpretation

4. Pending claims 1, 2, and 4-43 are considered to be product-by-process claims. These claims are examined according to the final structure, insofar as it may be determined, resulting from the claimed method steps. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Furthermore, once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). These principles are applicable to all of the rejections stated below. For further discussion, see the Manual of Patent Examining Procedure (MPEP) section 2113.

Should Applicant consider filing claims directed to a method of making a fuel cell, Applicant is advised that such claims will not be entered into the application as a matter of right.

Art Unit: 1745

Since Applicant has now received an action on the merits of the originally-presented invention, i.e., a fuel cell, later-filed claims directed to a method may not be entered if they are patentably distinct from the product claims. See MPEP 821.03.

Claim Rejections - 35 USC § 102/103

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 2, 4-19, 22-25, 27, and 30-43 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jankowski et al (U.S. Pre-Grant Publication No.2003/0138685).

The reference teaches a MEMS-based thin film fuel cell comprising a substrate (11), electrodes, catalysts, and an electrolyte (all generally “13”) formed on the substrate, a fuel

manifold (29) within the substrate, and an oxidant manifold (30) formed on top of the substrate (see Figure 1). Current extractor lines (47, 55) which can comprise nickel are connected to the electrodes and lead to the edge of the substrate (see Fig. 3; [0030]). As shown in Figure 8, plural cells comprising interconnects (216) can be stacked to scale voltage and power (see [0043]). Regarding claim 17, fuel manifolds (215) are in registration with each other. Regarding claims 6-8, edge seals can be defined as locations anywhere on the periphery of the substrate that is sealed. Regarding claim 22, the fuel cell can be a PEM fuel cell. Regarding claim 2, in all of the embodiments, ion conduction through the membrane is in a direction perpendicular to the surface of the substrate. The substrate may comprise silicon, glass, ceramic, or plastic, among other materials (see [0036]). Regarding claim 1, the recitation that the components are “fabricated sequentially” is given little patentable weight since it does not further limit the structure of the fuel cell.

It is further noted that claims 4, 9-14, 18, 30-34, and 36-43 are not considered to positively recite any fuel cell structure and the limitations of these claims have accordingly been given little weight. For example, claim 36 requires “an inert corrosion barrier,” but it is not clear if this element is contained in the final fuel cell structure since its relationship to other elements is not specified. Other claims, such as claims 6-8, recite partial structure (edge seals and flow channels) but the methods for making these elements are given little patentable weight. In addition, with regard to claim 1, it is not even clear that the final product requires the substrate. Please refer to “claim interpretation section” above for more guidance.

Finally, regarding claim 43, this claim recites method steps for operating the fuel cell, which are also given little weight since they do not further limit the structure of the fuel cell (MPEP 2114).

8. Claims 20, 21, 26, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jankowski et al.

The reference is applied as stated above. However, the reference does not expressly teach that the substrate contains pre-existing semiconductor circuits as recited in claim 20, that the substrate contains active MEMS type devices as recited in claim 21, the lateral dimensions of electrical “conductors” as recited in claim 26, or the presence of multi-level current extractor lines as recited in claims 28 and 29.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be sufficiently skilled or motivated to include each of these features in the apparatus of Jankowski et al. Regarding the recitations of active MEMS devices and pre-existing circuits on the substrate, Jankowski et al. generally teach that MEMS devices such as batteries are present in the system (see [0045]). It would be obvious to place these devices and other circuits on the substrate to provide for a compact system. As such, claims 20 and 21 are rendered obvious.

Regarding claim 26, it is noted that the “electrical conductors” are being interpreted as the extractor lines. It would be obvious to adjust the lateral dimensions of such lines to enhance current take-out capability and/or optimize the overall size of the system.

Regarding claims 28 and 29, which recite “multi-level” extractor lines, it would be obvious to use a multi-layer electrode or extractor line structure in the apparatus of Jankowski et al. Such a modification would increase structural integrity and/or allow for more current to be drawn off. In addition, the courts have held that the duplication of parts is generally not considered to distinguish over a reference (MPEP 2144.04).

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1, 2, and 4-43 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2, 5, 7, 9-11, 13, 15, 17, 19, 21, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 48, 50, 52, 55, and 57 of copending Application No. 10/727,436. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims are obvious variants of the '436 application claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

Art Unit: 1745

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau
Primary Examiner
Art Unit 1745
August 31, 2007